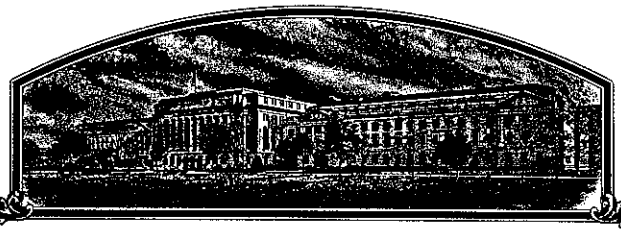
No. 8500047



THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

The Standard Oil Co.

Whereas, THERE HAS BEEN PRESENTED TO THE

Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED NOVEL VARIETY OF SEXUALLY REPRODUCED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF eighteen YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, IMPORTING IT, OR EXPORTING IT, OR USING IT IN PRODUCING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT (84 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

CORN

'SX-4-33-4-2'

In Testimony Whereof, *I have hereunto set my hand and caused the seal of the* Plant Variety Protection Office *to be affixed at the City of* Washington, D. C. *this* 31st *day of* March *in the year of our Lord one thousand nine hundred and* eighty-six.

Attest:

Commissioner
Plant Variety Protection Office
Agricultural Marketing Service

Secretary of Agriculture

APPROVAL EXPIRES 4-30-85

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE

FORM APPROVED: OMB NO. 0581-0055

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). Information is held confidential until certificate is issued (7 U.S.C. 2426).

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE

(Instructions on reverse)

1. NAME OF APPLICANT(S)
The Standard Oil Company

2. TEMPORARY DESIGNATION
X-4-33-4-2

3. VARIETY NAME
'SX-4-33-4-2' RFS 1/29/89

4. ADDRESS *(Street and No. or R.F.D. No., City, State, and Zip Code)*
Midland Building (928 TT)
Cleveland, Ohio 44115

5. PHONE *(Include area code)*
(216) 575-8475

FOR OFFICIAL USE ONLY

PVPO NUMBER
8500047

6. GENUS AND SPECIES NAME
Zea Mays

7. FAMILY NAME *(Botanical)*
Gramineae

FILING
DATE 1-24-85
TIME 4:00 ☐ A.M. ☒ P.M.

8. KIND NAME
Corn

9. DATE OF DETERMINATION
December 1981

FEES RECEIVED
AMOUNT FOR FILING
$ 1,800
DATE 1-24-85
AMOUNT FOR CERTIFICATE
$
DATE

10. IF THE APPLICANT NAMED IS NOT A "PERSON," GIVE FORM OF ORGANIZATION *(Corporation, partnership, association, etc.)*
Corporation

11. IF INCORPORATED, GIVE STATE OF INCORPORATION
Ohio

12. DATE OF INCORPORATION
January 10, 1870

13. NAME AND ADDRESS OF APPLICANT REPRESENTATIVE(S), IF ANY, TO SERVE IN THIS APPLICATION AND RECEIVE ALL PAPERS
Charles E. Lipsey or Geoffrey M. Karny
Finnegan, Henderson, Farabow, Garrett & Dunner
1775 K Street, N.W.
Washington, D.C. 20006
PHONE *(Include area code)*: (202) 293-6850

14. CHECK APPROPRIATE BOX FOR EACH ATTACHMENT SUBMITTED
- a. ☒ Exhibit A, Origin and Breeding History of the Variety *(See Section 52 of the Plant Variety Protection Act.)*
- b. ☒ Exhibit B, Novelty Statement.
- c. ☒ Exhibit C, Objective Description of Variety *(Request form from Plant Variety Protection Office.)*
- d. ☒ Exhibit D, Additional Description of Variety.
- e. ☒ Exhibit E, Statement of the Basis of Applicant's Ownership.

15. DOES THE APPLICANT(S) SPECIFY THAT SEED OF THIS VARIETY BE SOLD BY VARIETY NAME ONLY AS A CLASS OF CERTIFIED SEED? *(See Section 83(a) of the Plant Variety Protection Act.)* ☐ Yes *(If "Yes," answer items 16 and 17 below)* ☐ No

16. DOES THE APPLICANT(S) SPECIFY THAT THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS?
☐ Yes ☐ No

17. IF "YES" TO ITEM 16, WHICH CLASSES OF PRODUCTION BEYOND BREEDER SEED?
☐ Foundation ☐ Registered ☐ Certified

18. DID THE APPLICANT(S) PREVIOUSLY FILE FOR PROTECTION OF THE VARIETY IN THE U.S.?
☐ Yes *(If "Yes," give date)*
☒ No

19. HAS THE VARIETY BEEN RELEASED, OFFERED FOR SALE, OR MARKETED IN THE U.S. OR OTHER COUNTRIES?
☐ Yes *(If "Yes," give names of countries and dates)*
☒ No

20. The applicant(s) declare(s) that a viable sample of basic seeds of this variety will be furnished with the application and will be replenished upon request in accordance with such regulations as may be applicable.

The undersigned applicant(s) is (are) the owner(s) of this sexually reproduced novel plant variety, and believe(s) that the variety is distinct, uniform, and stable as required in Section 41, and is entitled to protection under the provisions of Section 42 of the Plant Variety Protection Act.

Applicant(s) is (are) informed that false representation herein can jeopardize protection and result in penalties.

SIGNATURE OF APPLICANT
The Standard Oil Company
By L W Evans
Larry W. Evans
Manager, Patent & License Div.

DATE 1/15/85

FORM WA-470 (7-84) (Edition of 3-84 is obsolete.)

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8500047

'SX-4-33-4-2'

Exhibit A: Origin and Breeding History of Corn Variety<X-4-33-4-2>

RJS 1/29/86

'SX-4-33-4-2'

<X-4-33-4-2>originated out of Dudley and Alexander's "Synthetic B." The breeding method for obtaining Synthetic B is described in J. W. Dudley and D. E. Alexander, Crop Science, 9:613-615, 1969. Original breeding stock was obtained from the University of Illinois in May, 1980.

The seeds of Synthetic B were planted in May of 1980 and self-pollinations were made on the most robust plants during the summer of 1980. Self-pollinated seed from these plants were bulked and selfed in the winter of 1980-81, winter of 1981-82, winter of 1982-83, and summer of 1983. Ears were kept separate from the summer 1983 planting, and an ear-to-row planting was made during the winter of 1983-84. The resulting plants were self-pollinated in the summer of 1984.

One generation was judged for uniformity and stability. Acceptable uniformity and stability were observed. There were no discernible variants.

'SX-4-33-4-2'

Outline of the Development of<X-4-33-4-2>

Type	Description	Location	Year
Synthetic B	Self-pollination	Ohio, Illinois	1980
4	Self-pollination	Florida	1980-81
4	Self-pollination	Florida	1981-82
4	Self-pollination	Florida	1982-83
4	Self-pollination	Indiana	1983
4	Self-pollination	Florida	1983-84
X-4-33-4-2	Self-pollination	Ohio	1984

'SX-4-33-4-2'

'SX-4-33-4-2'

Amendment to Exhibit B for Corn Variety <X-4-33-4-2>
(Application No. 8500047)

Please amend Exhibit B to show that 'SX-4-33-4-2' differs from 'SX-4-2' on the basis of leaf color (2 vs 3) and does not differ from 'SX-4-4' on the basis of cob color.

Exhibit B: Novelty Statement

'SX-4-33-4-2' is a tetraploid Zea maize ssp. maize. Unlike diploid corn, 'SX-4-33-4-2' has twice the normal number of chromosomes, that is, it has 40 somatic chromosomes. Normal Zea maize ssp. maize is diploid, and has 20 somatic chromosomes. Therefore, 'SX-4-33-4-2' is unique on the basis of its number of somatic chromosomes, and differs from all diploid corn on this basis.

'SX-4-33-4-2' differs from Synthetic B, from which it was derived, on the basis of its uniformity and homozygosity. Synthetic B is a very heterogeneous population, as demonstrated by the fact that the Applicant has derived a number of novel varieties from Synthetic B.

The most similar varieties to 'SX-4-33-4-2' are other varieties derived from Synthetic B. These are 'SX-4-2', 'SX-4-4', 'SX-4-16-2', and 'SX-4-32-1', for which applications for plant variety protection have been filed. The varieties have been assigned the following application numbers:

Variety	Application Number
'SX-4-2'	8400116
'SX-4-4'	8400114
'SX-4-16-2'	
'SX-4-32-1'	

'SX-4-33-4-2' differs from:

'SX-4-2' on the basis of:

LEAF Color	(2 vs. 3) RJS 12/19/85
Anther color	(2 vs. 1, respectively)*
Ear height-Ohio	(105 cm vs. 130 cm)

'SX-4-4' on the basis of:

Leaf color	(2 vs. 1)
Anther color	(2 vs. 1)
Glume color	(2 vs. 1)
Husk color	(2 vs. 1)
Ear height-Ohio	(105 cm vs. 120 cm)
~~Cob color~~	~~(2 vs. 3)~~

* The numbers refer to those listed for the particular characteristics on the Objective Description of Variety (Exhibit C) in the application for the identified varieties.

'SX-4-16-2' differs from:

Leaf color	(2 vs. 1)
Husk color	(2 vs. 1)
Anther color	(2 vs. 1)
Glume color	(2 vs. 1)
Cob color	(3 vs. 1)

'SX-4-32-1' on the basis of:

Anther color	(2 vs. 1)
Glume color	(2 vs. 1)
Cob color	(3 vs. 1)

FORM APPROVED. OMB NO. 40-R3712

FORM GR-470-28
(2-15-74)

UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
GRAIN DIVISION
HYATTSVILLE, MARYLAND 20782

EXHIBIT C
(Corn)

Revised
X-4-33-4-2

OBJECTIVE DESCRIPTION OF VARIETY
CORN *(ZEA MAYS)*

NAME OF APPLICANT(S)
The Standard Oil Company

ADDRESS *(Street and No. or R.F.D. No., City, State, and ZIP Code)*
Midland Building (928 TT)
Cleveland, Ohio 44115

FOR OFFICIAL USE ONLY

PVPO NUMBER
8500047

VARIETY NAME OR TEMPORARY DESIGNATION
SX-4-33-4-2 R/S 1/29/86

Place the appropriate number that describes the varietal character of this variety in the boxes below.
Place a zero in first box (e.g. [0][8][9] or [0][9]) when number is either 99 or less or 9 or less.

1. TYPE:

[2] 1 = SWEET 2 = DENT 3 = FLINT 4 = FLOUR 5 = POP 6 = ORNAMENTAL

2. REGION WHERE BEST ADAPTED IN THE U.S.A.:

[7] 1 = NORTHWEST 2 = NORTHCENTRAL 3 = NORTHEAST 4 = SOUTHEAST
5 = SOUTHCENTRAL 6 = SOUTHWEST 7 = MOST REGIONS

3. MATURITY (In Region of Best Adaptability):

(Under "omments" (pg. 3) state how heat units were calculated)

[ ][ ] DAYS FROM EMERGENCE TO 50% OF PLANTS IN SILK [ ][ ][ ][ ] HEAT UNITS

[ ][ ] DAYS FROM 50% SILK TO OPTIMUM EDIBLE QUALITY [ ][ ][ ][ ] HEAT UNITS

[ ][ ] DAYS FROM 50% SILK TO HARVEST AT 25% KERNEL MOISTURE [ ][ ][ ][ ] HEAT UNITS

4. PLANT:

[2][2][8] Ohio
[1][1][3] CM. HEIGHT (To tassel tip) – Florida

[ ][ ] CM. LENGTH OF TOP EAR INTERNODE

[1][0][5] Ohio
[0][4][5] CM. EAR HEIGHT (To base of top ear)
Florida

Number of Tillers:

[2] 1 = NONE 2 = 1–2 3 = 2–3 4 = > 3

Number of Ears Per Stalk:

[2] 1 = SINGLE 2 = SLIGHT TWO-EAR TENDENCY
3 = STRONG TWO-EAR TENDENCY 4 = THREE-EAR TENDENCY

Cytoplasm Type:

[ ] 1 = NORMAL 2 = "T" 3 = "S" 4 = "C" 5 = OTHER (Specify) _____

5. LEAF (Field Corn Inbred Examples Given):

Color:

[2] 1 = LIGHT GREEN (HY) 2 = MEDIUM GREEN (WF9) 3 = DARK GREEN (B14) 4 = VERY DARK GREEN (K166)

Angle from Stalk (Upper half):

[2] 1 = < 30° 2 = 30–60° 3 = > 60°

Sheath Pubscence:

[1] 1 = LIGHT (W22) 2 = MEDIUM (WF9)
3 = HEAVY (OH26)

Marginal Waves:

[2] 1 = NONE (HY) 2 = FEW (WF9) 3 = MANY (OH7L)

Longitudinal Creases:

[1] 1 = ABSENT (OH51) 2 = FEW (OH56A)
3 = MANY (PA11)

Width:

[1][1] CM. WIDEST POINT OF EAR NODE LEAF
Florida

[ ][ ] NUMBER OF LEAVES PER MATURE PLANT

Length:

[0][6][8] CM. EAR NODE LEAF
Florida

6. TASSEL:

[1][5] NUMBER OF LATERAL BRANCHES

Branch Angle from Central Spike:

[2] 1 = < 30° 2 = 30–40° 3 = > 45°

Penduncle Length:

[ ][ ] CM. FROM TOP LEAF TO BASAL BRANCHES

Pollen Shed:

[3] 1 = LIGHT (WF9) 2 = MEDIUM 3 = HEAVY(KY21)

[2] **Anther Color:**
[2] **Glume Color:**
1 = YELLOW 2 = PINK 3 = RED 4 = PURPLE 5 = GREEN
6 = OTHER (Specify) _____

1 Ring Color

Pollen Restoration for Cytoplasms (0 = Not Tested, 1 = Partial, 2 = Good)

[ ] "T" [ ] "S" [ ] "C" [ ] OTHER (Specify Cytoplasm and degrees of restoration) _____

7. EAR (Husked Ear Data Except When Stated Otherwise):

[1][7] CM LENGTH [ ][ ] MM. MID-POINT DIAMETER [ ][ ] GM. WEIGHT

Kernel Rows:

[ ] 1 = INDISTINCT 2 = DISTINCT [1][6] NUMBER

[ ] 1 = STRAIGHT 2 = SLIGHTLY CURVED 3 = SPIRAL

Silk Color (Exposed at Silking Stage):

[1] 1 = GREEN 2 = PINK 3 = SALMON 4 = RED

Husk Color:

[2] FRESH
[ ] DRY
1 = LIGHT GREEN 2 = DARK GREEN 3 = PINK
4 = RED 5 = PURPLE 6 = BUFF

Husk Extention: (Harvest Stage)

[3] 1 = SHORT (Ears Exposed) 2 = MEDIUM (Barely Covering Ear)
3 = LONG (8–10CM Beyond Ear Tip)
4 = VERY LONG (> 10 CM)

Husk Leaf:

[1] 1 = SHORT (< 8 CM) 2 = MEDIUM (8–15 CM)
3 = LONG (> 15 CM)

Shank:

[ ][ ] CM LONG [ ] NO. OF INTERNODES

Position at Dry Husk Stage:

[ ] 1 = UPRIGHT 2 = HORIZONTAL 3 = PENDENT

Taper:

[ ] 1 = SLIGHT 2 = AVERAGE 3 = EXTREME

Drying Time (Unhusked Ear):

[ ] 1 = SLOW 2 = AVERAGE 3 = FAST

8. KERNEL (Dried):

Size (From Ear Mid-Point):

[1][0] MM LONG [0][8] MM. WIDE [0][5] MM. THICK

Shape Grade (% Rounds)

[2] 1 = < 20 2 = 20–40 3 = 40–60 4 = 60–80 5 = > 80

8. KERNEL (Dried) :

[8] **Pericarp Color:** 1 = COLORLESS 2 = RED-WHITE 3 = TAN 4 = BRONZE
5 = BROWN 6 = LIGHT RED 7 = CHERRY RED
8 = VARIEGATED (Describe) variegated bronze, yellow

[1] **Aleurone Color:** 1 = HOMOZYGOUS 2 = SEGREGATING (Describe)_____

[ ] 1 = WHITE 2 = PINK 3 = TAN 4 = BROWN 5 = BRONZE 6 = RED
7 = PURPLE 8 = PALE PURPLE 9 = VARIEGATED (Describe) _____

[3] **Endosperm Color:** 1 = WHITE 2 = PALE YELLOW 3 = YELLOW 4 = PINK-ORANGE 5 = WHITE CAP.

Endosperm Type:

[3] 1 = SWEET (su1) 2 = EXTRA SWEET (sh2) 3 = NORMAL STARCH 4 = HIGH AMYLOSE STARCH
5 = WAXY STARCH 6 = HIGH PROTEIN 7 = HIGH LYSINE 8 = OTHER (Specify) _____

[ ][ ] GM. WEIGHT /100 SEEDS (Unsized Sample)

9. COB:

[ ][ ] MM. DIAMETER AT MID-POINT

Strength:

[ ] 1 = WEAK 2 = STRONG

Color:

[3] 1 = WHITE 2 = PINK 3 = RED 4 = BROWN
5 = VARIEGATED 6 OTHER (Specify)_____

10. DISEASE RESISTANCE (O = Not Tested, 1 = Susceptible, 2 = Resistant):

[0] STALK ROT (Diplodia)	[0] STALK ROT (Fusarium)	[0] STALK ROT (Gibberella)
[0] NORTHERN LEAF BLIGHT	[0] SOUTHERN LEAF BLIGHT	[0] SMUT
[0] SOUTHERN RUST	[0] CORN SMUT	[0] BACTERIAL WILT
[0] BACTERIAL LEAF BLIGHT	[0] MAIZE DWARF MOSAIC	[0] STUNT
[0] OTHER (Specify)		

11. INSECT RESISTANCT (O = Not Tested, 1 = Susceptible, 2 = Resistant):

[0] CORNBORER	[0] EARWORM	[0] SAPBEETLE	[0] APHID
[0] ROOTWORM (Northern)	[0] ROOTWORM (Western)		
[0] ROOTWORM (Southern)	[0] OTHER (Specify)_____		

12. VARIETIES MOST CLOSELY RESEMBLING THAT SUBMITTED FOR THE CHARACTERS GIVEN:

CHARACTER	VARIETY	CHARACTER	VARIETY
Maturity		Kernel Type	
Plant Type		Quality (Edible)	
Ear Type		Usage	

REFERENCES:

U.S. Department Agriculture. Yearbook 1937.
Corn: Culture, Processing, Products. 1970 Avi Publishing Company, Westport, Connecticut. (Numerous (Authors)
Emerson, R.A., G.W. Beadle, and A.C. Fraser. A Summary of Linkage Studies in Maize.Cornell A.E.S., Mem. 180. 1935.
The Mutants of Maize. 1968. Crop Science Society of America. Madison, Wisconsin.
Stringfield, G.H. Maize Inbred Lines of Ohio. Ohio A.E.S. Bul. 831. 1959.
Butler, D.R. 1954 — A System for the Classification of Corn Inbred Lines — PhD. Thesis, Ohio State University.

COMMENTS:

'SX-4-33-4-2'

Exhibit D: Additional Description of Corn Variety<X-4-33-4-2>

'SX-4-33-4-2'

<X-4-33-4-2>was tested for esterase 1 as described in A. L. Kahler, Crop Science, 23:572-576, 1983. The results were as follows: esterase 1 locus, allele 3.

Exhibit E: Statement of the Basis of Applicant's Ownership

The Standard Oil Company is the employer of the plant breeder involved in the development of 'SX-4-33-4-2'. The Standard Oil Company has sole rights to and ownership of 'SX-4-33-4-2'.

RJS 1/29/86

8500047

ASSIGNMENT

WHEREAS, I, STEVEN CHANDLER PRICE, a citizen of the United States of America, residing at 3284 Hyde Park Avenue, Cleveland Heights, Ohio 44118, as assignor, have developed a novel plant variety designated Corn<X-4-33-4-2; and 'SX-4-33-4-2'

WHEREAS, THE STANDARD OIL COMPANY, a corporation organized and doing business under the laws of the State of Ohio, whose post office address is Midland Building, Cleveland, Ohio 44115, as assignee, is desirous of securing the entire right, title, and interest in and to this novel plant variety in all countries throughout the world;

NOW THEREFORE, be it known that for and in consideration of the sum of One Dollar ($1.00) in hand paid and other good and valuable consideration the receipt of which from assignee is hereby acknowledged, I, as assignor, have sold, assigned, transferred, and set over, and do hereby sell, assign, transfer, and set over unto the assignee, its lawful successors and assigns, my entire right, title and interest in and to this novel plant variety designated CornSX-4-33-4-2 and improvements thereof, the so-designated Application for United States Certificate of Plant Variety Protection, which was executed on January 16, 1985 by assignee, and all Certificates of Plant Variety Protection of the United States which may be granted thereon, and all reissues, continuations, extensions, or renewals thereof, and all rights to claim priority on the basis of such application, and all applications for Certificates of Plant Variety Protection or applications for similar rights, however denominated, which may hereafter be filed for this novel plant variety in any foreign country and all Certificates of Plant Variety Protection or other rights which may be granted on this novel plant variety in any foreign country, and all extensions, renewals, and reissues thereof; and I hereby authorize and request the Secretary of Agriculture of the United States and any official of any foreign country whose duty it is to issue certificates on applications as described above, to issue all Certificates of Plant Variety Protection or other rights for this novel plant variety to assignee, its successors and assigns in accordance with the terms of this Assignment;

AND, I HEREBY covenant that I have the full right to convey the interest assigned by this Assignment, and I have not executed and will not execute any agreement in conflict with this Assignment;

AND, I HEREBY further covenant and agree that I will, without further consideration, communicate with assignee, its successors and assigns, any facts known to me respecting this novel plant variety, and testify in any legal proceeding, sign all lawful papers when called upon to do so, execute and deliver any and all papers that may be necessary or desirable to perfect the

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title to this novel plant variety in said assignee, its successors and assigns, make all rightful oaths and generally do everything possible to aid assignee, its successors and assigns to obtain and enforce proper certificate protection for this novel plant variety in the United States and any foreign country, it being understood that any expense incident to the execution of such papers shall be borne by the assignee, its successors and assigns.

I authorize my attorney(s), Joseph G. Curatolo, to insert on this assignment the date of execution of said application when known.

IN TESTIMONY WHEREOF, I have hereunto set my hand this 4 day of Jan, ~~1984.~~ 1985

Steven C. Price
(Signature of Assignor)

COUNTY OF Cuyahoga)
) ss.
STATE OF Ohio)

Subscribed and Sworn to before me this 4th day of January, 1985.

Susan Munding Frollo
Notary Public
SUSAN MUNDING FROLLO Notary Public
STATE OF OHIO
My Commission Expires August 24, 1985

(SEAL)

Witnesses:

_____

_____